This listing of claims will replace all previous versions and listing of claims in the application.

Listing of Claims

1. (Currently amended): A solid phase for binding nucleic acids comprising:

a solid support portion comprising a matrix ~~selected from~~ comprising at least one of silica, glass, insoluble synthetic polymers, ~~and~~ or insoluble polysaccharides, ~~to which is attached on a surface;~~

~~a cleavable linker portion to the solid support portion, and~~

a nucleic acid binding portion for attracting and non-covalently and non-sequence specifically binding nucleic acids ~~linked to the cleavable linker portion~~ wherein the nucleic acid binding portion comprises at least one of a ternary sulfonium group, a quaternary ammonium, or a quaternary phosphonium group $PR_3^+ X^-$, and

a cleavable linker portion linking the nucleic acid binding portion to the solid support.

2. (Original): The solid phase of claim 1 wherein the nucleic acid binding portion is selected from a ternary sulfonium group of the formula $SR_2^+ X^-$ where R is selected from C_1-C_{20} alkyl, aralkyl and aryl groups, a quaternary ammonium group of the formula $NR_3^+ X^-$ where R is selected from C_4-C_{20} alkyl, aralkyl and aryl groups, and a quaternary phosphonium group of the formula $PR_3^+ X^-$ where R is selected from C_1-C_{20} alkyl, aralkyl and aryl groups, and wherein X is an anion.

3. (Withdrawn): The solid phase of claim 2 wherein the nucleic acid binding portion is a quaternary ammonium group and the R groups each contain from 4-20 carbon atoms.

4. (Original): The solid phase of claim 2 wherein the nucleic acid binding portion is a quaternary phosphonium group and the R groups each contain from 1-20 carbon atoms.

5. (Original): The solid phase of claim 4 wherein each R group is a butyl group.

6. (Withdrawn): The solid phase of claim 1 wherein the solid support portion comprises an insoluble synthetic polymer.

7. (Withdrawn): The solid phase of claim 1 wherein the solid support portion comprises a glass matrix.

8. (Original): The solid phase of claim 1 wherein the solid support portion comprises a silica matrix.

9. (Original): The solid phase of claim 1 wherein the cleavable linker portion further comprises one or more connecting portions.

10. (Original): The solid phase of claim 1 further comprising a magnetically responsive portion.

11. (Currently Amended): The solid phase of claim 1 wherein the cleavable linker portion is ~~cleaved~~ hydrolytically cleavable.

12. (Original): The solid phase of claim 11 wherein the hydrolytically cleavable linker portion is an ester or thioester group.

13. (Withdrawn): The solid phase of claim 1 wherein the cleavable linker portion is cleaved reductively.

14. (Withdrawn): The solid phase of claim 1 wherein the cleavable linker portion comprises a triggerable dioxetane ring.

15. (Withdrawn): The solid phase of claim 1 wherein the cleavable linker portion comprises an electron rich alkene which is cleaved by conversion to a thermally unstable dioxetane.

16. (Withdrawn): The solid phase of claim 1 wherein the cleavable linker portion is cleaved enzymatically.

17. (Withdrawn): The solid phase of claim 16 wherein the cleavable linker portion comprises an acridan ketene dithioacetal which is cleaved by reaction with a peroxidase and a peroxide.

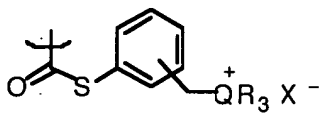
18. (Withdrawn): The solid phase of claim 16 wherein the cleavable linker portion comprises an ester which is cleaved by a hydrolase enzyme or an esterase enzyme.

19. (Withdrawn): The solid phase of claim 16 wherein the cleavable linker portion comprises an amide which is cleaved by a protease enzyme.

20. (Withdrawn): The solid phase of claim 16 wherein the cleavable linker portion comprises a peptide which is cleaved by a peptidase enzyme.

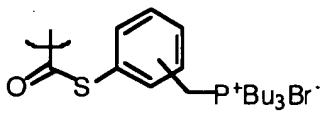
21. (Withdrawn): The solid phase of claim 16 wherein the cleavable linker portion comprises a glycoside which is cleaved by a glycosidase enzyme.

22. (Original): The solid phase of claim 12 wherein the cleavable linker portion comprises a thioester having the formula:



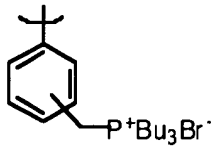
wherein Q is P or N and R is alkyl of 1-20 carbons.

23. (Original): The solid phase of claim 22 wherein the cleavable linker portion comprises a thioester having the formula:



24. (Withdrawn): The solid phase of claim 1 wherein the cleavable linker portion is an alkylene group of at least one carbon atom bonded to a trialkylphosphonium or triarylphosphonium nucleic acid binding portion and is cleavable by means of a Wittig reaction with a ketone or aldehyde.

25. (Withdrawn): The solid phase of claim 24 wherein the cleavable linker portion has the formula



26. (Withdrawn): The solid phase of claim 2 wherein the nucleic acid binding portion of the solid phase is a ternary sulfonium group of the formula $SR_2^+ X^-$ where R is selected from C_1-C_{20} alkyl, aralkyl and aryl groups, and wherein X is an anion.

27. (New): A solid phase for binding nucleic acids comprising:

a solid support portion comprising a matrix comprising at least one of silica, glass, insoluble synthetic polymers, or insoluble polysaccharides,

a nucleic acid binding portion for attracting and non-covalently and non-sequence specifically binding nucleic acids wherein the nucleic acid binding portion is a quaternary phosphonium group $PR_3^+ X^-$ wherein R is selected from C_1-C_{20} alkyl, aralkyl and aryl groups, and wherein X is an anion, and

a cleavable linker portion linking the nucleic acid binding portion to the solid support wherein the cleavable linker portion is an ester or thioester group.

28. (New): A solid phase for binding nucleic acids comprising:

a solid support portion comprising a matrix comprising at least one of silica, glass, insoluble synthetic polymers, or insoluble polysaccharides,

a nucleic acid binding portion for attracting and non-covalently and non-sequence specifically binding nucleic acids wherein the nucleic acid binding portion is a quaternary phosphonium group $PR_3^+ X^-$ wherein R is selected from C_1-C_{20} alkyl, aralkyl and aryl groups, and wherein X is an anion, and

a cleavable linker portion linking the nucleic acid binding portion to the solid support wherein the cleavable linker portion comprises a thioester having the formula: